

IN THE CLAIMS:

Please amend claims 1-17 and add claims 18-22 as follows:

1. (Currently Amended) A device for detecting a cellular metabolic process associated with a cell by detecting a luminescence event in, at, or in the immediate vicinity of thea cell, a cell cluster, or a tissue, the said device comprising:

(a) a carrier element (1) with a surface (100) prepared for direct or indirect coupling of the cells thereto;

(b) at least one optical a detector (2) for receiving a luminescence signal indicative of the luminescent event, where the detector is integrated into the carrier element (1) below the prepared surface (100);

(c) a cover (7) covering the prepared surface (100) to form a cavity (7), the said cover having an inlet opening (8) and an outlet opening (9); and

(d) an excitation source (21) connected to the inlet opening (8) and accepting a biological or chemical excitation medium that includes a luminophore, where the excitation medium influences the metabolism of the cell during excitation thereof by the medium, and where the luminophore reacts with a metabolic product of the cell during for the excitation thereof cellsto thereby provide the luminescence signal.

2. (Currently Amended) The device of according to Cclaim 1, further comprising in which an optical filter located (4) is formed between the prepared surface (100) and the (at least one) optical detector (2).

3. (Currently Amended) The device of according to Cclaim 1, where in which the carrier element (1) is a semiconductor body.

4. (Currently Amended) The Ddevice of according to claim 1, where in which multiple a plurality of optical detectors (2) are integrated into the carrier element (1) below the prepared surface (100) prepared for coupling the cells.

5. (Currently Amended) The Ddevice of according to Cclaim 14, where in which the at least one optical detector (2) comprises a photodiode.

6. (Currently Amended) The Ddevice of according to claim 1, further comprising an evaluation circuit (11) connected to the (at least one) detector (2).

7. (Currently Amended) The Ddevice of according to Cclaim 1, 6, further comprising an in which the evaluation circuit (11) is integrated into the carrier element (1).

8. (Currently Amended) The Ddevice of according to Cclaim 1, 6, further comprising an in which the excitation source (21), controlled by the evaluation circuit that controls the excitation source to send, sends the chemical or biological excitation medium substance to the inlet opening (8).

9. (Currently Amended) The Ddevice of according to Cclaim 1, 8, further comprising in which a valve is disposed in an inlet line between the excitation source (21) and the inlet opening (8) to control a the supply of the excitation medium to the inlet.

10. (Currently Amended) ~~The D~~device ~~of according to~~ claim 1, where the prepared surface includes ~~wherein~~ an adhesion matrix and/or a growth substrate for the cells ~~is applied coupled thereto to the surface (100).~~

11. (Currently Amended) ~~The D~~device ~~of according to~~ claim 10, where ~~in which~~ the growth substrate comprises gelatin.

12. (Currently Amended) ~~The D~~device ~~of according to~~ claim 12, where the prepared surface has ~~in which~~ a cell-immobilizing medium is applied thereto ~~to surface (100).~~

13. (Currently Amended) ~~The D~~device ~~of according to~~ claim 12, where ~~in which~~ the cell-immobilizing medium comprises negatively charged polystyrene.

14. (Currently Amended) ~~The D~~device ~~of according to~~ claim 1, where ~~at least one cell (6)~~ is immobilized at the prepared surface.

15. (Currently Amended) ~~The D~~device ~~of according to~~ claim 1, where ~~in which~~ a depression is created in at least a portion of the prepared surface, ~~of the carrier device prepared for receiving cells, by contrast with surface areas (101) not prepared for receiving cells, said depression being preferably at least 100 nm deep.~~

16. (Currently Amended) ~~A M~~method for detecting ~~of a~~ luminescence signal event ~~in~~ using a sensor; at, or in the immediate vicinity of a cell, a cell cluster, or a tissue, the method comprising the steps of:

~~—Immobilizing ation of the cell at a the surface of the sensor (100)—~~prepared for receiving cells;

~~—Introducing tion of a luminophore reacting with a cell metabolic product in the cell~~
(6) ~~or in the vicinity of the cell;~~

~~—Stimulating ion of the cell by a chemical or biological substance;~~ and

~~—Detecting on of a the~~ luminescence signal.

17. (Currently Amended) ~~The M~~method ~~of according to Cclaim 16, 15, where in which~~ the luminescence signal is detected with temporal resolution.

18. (New) A device for detecting a cellular metabolic process associated with a cell by detecting a luminescence event in, at, or in the immediate vicinity of the cell, the device comprising:

a semiconductive device with a surface prepared for coupling of the cell thereto;

a detector for providing a luminescence signal indicative of the luminescent event,
where the detector is integrated into the semiconductive device below the cell;

a cover that covers the prepared surface to form a cavity, the cover having an inlet and an outlet; and

an excitation source that provides to the cavity via the inlet a biological or chemical excitation medium that includes a luminophore, where the excitation medium influences the

metabolism of the cell during excitation thereof by the medium, and where the luminophore reacts with a metabolic product of the cell during the excitation thereof to provide luminescence detected by the detector.

19.(New) The device of claim 18, further comprising an optical filter located between the prepared surface and the optical detector, and where a plurality of optical detectors are integrated into the semiconductive substrate below the prepared surface.

20. (New) The device of claim 18, further comprising an evaluation circuit semiconductive that controls the excitation source to send the chemical or biological excitation medium to the inlet opening.

21. (New) The device of claim 18, where the prepared surface has a cell-immobilizing medium applied thereto.

22. (New) A device for detecting a cellular metabolic process associated with a cell by detecting a luminescence event, the device comprising:

a semiconductive device with a surface prepared with a cell-immobilizing medium for coupling and immobilizing of the cell thereto;

a detector for providing a luminescence signal indicative of the luminescent event, where the detector is integrated into the semiconductive device below the cell and prepared surface;

a housing that in cooperation with the prepared surface forms a cavity having an inlet and an outlet; and

an excitation source that provides to the cavity via the inlet a biological or chemical excitation medium that includes a luminophore, where the excitation medium influences the metabolism of the cell and the luminophore reacts with a metabolic product of the cell to provide luminescence detected by the detector.